

**Montana Department of Commerce -
Quality Schools -**

**Quick Start Program Awards -
Energy Summary Analysis -**

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INTRODUCTION

In May of 2009 the 61st Legislature and Governor Schweitzer approved the Quick Start Program. The program was designed to assist schools with two main focuses. The first objective was to assist the schools with conducting energy audits. The energy audits are designed to identify how the school is used, identify energy wasters in the school, indentify potential areas of improvement, and recommend solutions to help make the school more energy efficient. The second focus of the Quick Start program was completing energy efficient projects that provide long-term, cost-effective benefits to the school.

The purpose of this report is to look at the energy savings results of the projects that were funded by the Quick Start program.

PROCESS -

To evaluate the savings in both energy units and dollars, two years of historical utility data (pre-project) and one year of utility data (post-project) was requested and received from the school administrators. Data processing was conducted and the school utility data was then analyzed based on the type of project that was implemented at the school. For example if a lighting upgrade project was funded at the school, only the electrical data was analyzed and evaluated. This analysis compared the average annual pre-project energy usage to the annual energy usage post-project. Annual energy usage savings were reported on the data summary sheets. Since the Quick Start projects were implemented by September of 2009 the preferred calendar year for this analysis was October 2009 to September 2010. If utility data was not available to support this calendar year, the calendar year that was used in the analysis is listed in the comments section of the data summary sheet.

To evaluate the cost savings, the annual post-project utility costs were divided by the annual post-project energy usage which provides an annual average dollar per energy unit number. To calculate an annual dollar savings the annual dollar per energy unit number was multiplied by the annual energy usage savings. This calculation yields a better comparison for dollars of energy saved, because the utility rate is the same, which yields a true cost savings. For example, a school may show energy savings after the implementation of the project, but have an actual increase in utility bills due to rate increase by the utility or fuel provider. The cost savings shown in the summary sheets are based on the average utility rate for the post-project year.

The awarded schools analyzed in this report use six different types of fuel to power and heat their facilities: electricity, natural gas, propane, diesel (fuel oil), coal, and wood. While electricity and natural gas are easier to trend and analyze, propane, diesel, coal, and wood are not as straightforward. These four fuel sources require large storage containers for extended periods of use so the fuel is not delivered on a consistent monthly basis. For this reason the analysis of the energy consumption and cost may be misleading. The more fuel delivery data that is available both pre- and post-project for these fuel sources returns a more accurate verification of energy savings. Considering that the Quick Start projects were implemented by September of 2009 only one year of energy usage and cost data is available at this time. A similar analysis in another year or two may yield better verification of energy usage. Detailed analysis was conducted on each of the schools in an effort to provide an accurate summation of the energy improvements, however some schools with these fuel sources showed substantial energy savings or energy increases which may be partially explained by the schedule and total quantity of the fuels delivery.

SUMMARY -

The following summary is divided into four project categories: Overall Summary, Lighting, Windows and Doors, and HVAC Improvements and Upgrades. Refer to Appendix A and B For a complete list of the Quick Start project results and data.

Overall Summary

The Quality School Quick Start Program awarded grants to the Montana Schools for energy improvement projects. These projects included lighting upgrades, window and door replacements, heating ventilating and air conditioning system upgrades, and building envelope improvements. Table 1 below shows the total of the grants awarded, the calculated savings after the project's completion, a simple payback in years, and the dollar of savings per dollar of grant money awarded. See Appendix A and B for more detailed information about the projects and results of the grant awards.

Table 1. Overall Projects Summary

Total Grant Awarded	\$12,115,917.00
*Adjusted Total Grant Awarded	\$10,896,766.00
2009-2010 Calculated Savings	\$ 476,419.72
Simple Payback (Years)	22.87
\$ Savings / \$ Grant Awarded	\$ 0.044

* The adjusted grant awarded total excludes the schools that did not provide data for this analysis. It also excludes the schools whose utility cost data was incomplete or unable to be analyzed. The Payback and \$ Savings/ \$ Awarded are calculated from the adjusted total.

Lighting

In general the lighting upgrade projects replaced inefficient lamps and ballasts with new energy efficient T8 or T5 lamps and electronic ballasts. The following table shows the summary of the schools that received lighting upgrade only projects. The results shown in the table below excludes the schools whose utility data did not provide the full energy cost information, showed energy increases due to school expansions/renovations, or showed a substantial energy increase. Not all of the schools that received lighting upgrades showed energy savings. Since lighting upgrades have a defined energy savings per lamp, an energy increase can only be attributed to a change in use of the building. Some changes that may effect the electrical consumption at a school may include but is not limited to: operation hours of the building, increase in number of computers and other equipment, use of kitchen appliances, and use of space heaters. Table 2 below shows the total of the grants awarded, the calculated savings after the project's completion, a simple payback, and the dollar of savings per dollar of grant money awarded.

Table 2. Lighting Projects Summary

Total Grant Awarded	\$ 3,620,407.00
2009-2010 Calculated Savings	\$ 279,507.47
Simple Payback (Years)	12.95
\$ Savings / \$ Grant Awarded	\$ 0.077

Windows and Doors

Window replacement projects replaced single pane windows with new energy efficient windows. Uninsulated or leaky doors were replaced with insulated doors with proper door seals. The following summary is provided for the schools that received window only, and window and door replacements. Table 3 below shows the total of the grants awarded, the calculated savings after the project's completion, a simple payback, and the dollar of savings per dollar of grant money awarded.

Table 3. Window and Door Replacement Projects Summary

Total Grant Awarded	\$ 1,666,971.00
2009-2010 Calculated Savings	\$ 113,299.07
Simple Payback (Years)	14.71
\$ Savings / \$ Grant Awarded	\$ 0.068

HVAC Upgrades and Improvements

The Heating Ventilating and Air Conditioning (HVAC) upgrades and improvements projects vary from boiler replacements, controls, commissioning, and new geothermal heat pump systems. While these projects can show the most energy improvements it may take some time to get them operating at their optimal efficiency. Many of the projects in this category show substantial energy savings, while others show little savings and a few show actual cost increases. Some of the cost increase may be explained by incomplete or skewed data related to fuel delivery schedules as explained above in the process section of this report. Table 4 below shows the total summary of all of the schools with HVAC Upgrades and Improvements Projects only. Table 5 is a summary of the adjusted totals and calculation excluding the projects that showed energy cost increases.

Table 4. HVAC Upgrades and Improvements Projects Summary

Total Grant Awarded	\$ 2,488,676.00
2009-2010 Calculated Savings	\$ 47,006.03
Simple Payback (Years)	52.94
\$ Savings / \$ Grant Awarded	\$ 0.019

Table 5. Adjusted HVAC Upgrades and Improvements Projects Summary -

Adjusted Total Grant Awarded	\$ 1,878,138.00
2009-2010 Calculated Savings	\$ 68,151.82
Simple Payback (Years)	27.56
\$ Savings / \$ Grant Awarded	\$ 0.036
* The adjusted total and calculation in this table exclude the schools that showed a post project cost increase	

APPENDIX

- A. Project Data Summary Table**
- B. School Project Data Sheets**

Appendix A. Project Data Summary Table

School District	School	Project Type	Grant Amount	Total Savings (\$)	Electric Savings		Natural Gas Savings		Propane Gas Savings		Diesel Savings		Coal or Wood Savings	
					Energy	Dollar	Energy	Dollars	Energy	Dollars	Energy	Dollars	Energy	Dollars
Absarokee	Absarokee Elementary School	Windows	\$ 48,004.00	\$ 613.89	3,300.00		32.90	\$ 613.89						
Alberton	Alberton Elementary School	Windows	\$ 50,000.00	\$ 144.71	(2,260.00)	\$ (226.56)			150.50	\$ 371.27				
Anaconda	Dwyer School	Lighting	\$ 95,429.00	\$ (412.26)	(4,120.00)	\$ (412.26)								
Anaconda	Administration Building	Lighting	\$ 95,429.00	\$ 6,750.48	63,560.00	\$ 6,750.48								
Anaconda	Anaconda High School	Lighting	\$ 95,429.00	\$ 1,585.65	16,160.00	\$ 1,585.65								
Anaconda	Fred Moody Middle School	Lighting	\$ 95,429.00	\$ 2,210.49	21,620.00	\$ 2,210.49								
Anaconda	Lincoln School	Lighting	\$ 95,429.00	\$ 601.52	6,160.00	\$ 601.52								
Anaconda	Memorial Gym	Lighting	\$ 95,429.00	\$ 183.44	1,680.00	\$ 183.44								
Augusta	Augusta High School	Window Replacement and Lighting Upgrade	\$ 138,649.00	\$ 4,350.35	17,075.00		278.40	\$ 4,350.35						
Beaverhead Co.	Beaverhead High School	Lighting/Sensors	\$ 38,368.00	\$ -	38,400.00									
Belgrade	Belgrade Bus Barn	Lighting	\$ 48,728.00	\$ (3,677.16)	(67,380.00)	\$ (3,677.16)								
Belgrade	Belgrade High School	Lighting	\$ 54,368.00	\$ -	54,840.00									
Belgrade	Belgrade High School Event Center	Lighting	\$ 54,368.00	\$ -	11,840.00									
Belgrade	Belgrade Middle School	Lighting	\$ 48,728.00	\$ 8,352.34	75,440.00	\$ 8,352.34								
Belgrade	Martha Fox Heck Elementary	Lighting	\$ 48,728.00	\$ -	16,040.00									
Belgrade	Quaw Elementary	Lighting	\$ 48,728.00	\$ -	12,240.00									
Belgrade	Ridge View Elementary	Lighting	\$ 48,728.00	\$ -	9,280.00									
Bigfork	Bigfork High School	Windows and Doors	\$ 73,838.00	\$ 1,755.21	9,400.00	\$ 582.19	130.30	\$ 1,173.02						
Billings	Billings High School Career Center	Rooftop units	\$ 564,000.00	\$ -	220,800.00		1,219.00							
Billings	Billings High School Facilities Services	Roof insulation	\$ 564,000.00	\$ -	10,051.50		710.50							
Box Elder	Box Elder K-12 School	Sensors, Lighting, HVAC, windows	\$ 128,697.00	\$ (6,191.99)	(1,359.50)	\$ (125.49)			(3,459.00)	\$ (6,066.50)				
Bozeman	Bozeman High School	Lighting	\$ 184,568.00	\$ 54,642.87	504,160.00	\$ 43,658.38	913.50	\$ 10,984.49						
Bozeman	Wilson Elementary School	Lighting and new roof	\$ 190,943.00	\$ (2,286.40)	12,360.00	\$ 1,177.67	(283.00)	\$ (3,464.07)						
Broadus	Broadus Powder River Co High School	Lighting	\$ 19,233.00	\$ 142.42	3,120.00	\$ 142.42								
Brockton	Brockton High School	Lighting	\$ 75,000.00	\$ (2,563.65)	(48,588.50)	\$ (2,563.65)								
Butte	Hillcrest Elementary School	Lighting and boiler	\$ 353,749.00	\$ 3,008.54	15,801.00	\$ 3,008.54	304.60							
Butte	Kennedy Elementary School	Lighting and boiler	\$ 353,749.00	\$ 1,314.39	5,377.50	\$ 1,314.39	543.40							
Canyon Creek	Canyon Creek Gymnasium	Lighting	\$ 12,884.00	\$ (1,197.68)	(11,360.00)	\$ (1,197.68)								
Cascade	Cascade Elementary School and High School	Controls, Retro-Commissioning	\$ 369,127.00	\$ (196.13)	90,268.00		(144.08)	\$ (196.13)						
Centerville	Centerville Elementary and High School	Building Wide Energy Management System	\$ 169,107.00	\$ (2,366.33)	47,812.50	\$ 4,493.01			(3,304.00)	\$ (6,751.53)	(54.79)	\$ (97.81)		
Choteau	Choteau Elementary School	Window, Lighting	\$ 77,958.00	\$ 2,865.98	11,600.00	\$ 2,725.45	12.50	\$ 140.53						
Circle	Circle Public School	Lighting	\$ 59,997.00	\$ (2,354.81)	25,280.00	\$ 2,808.44			(1,082.00)	\$ (5,163.25)				

Appendix A
Project Data Summary Table

School District	School	Project Type	Grant Amount	Total Savings (\$)	Electric Savings		Natural Gas Savings		Propane Gas Savings		Diesel Savings		Coal or Wood Savings	
					Energy	Dollar	Energy	Dollars	Energy	Dollars	Energy	Dollars	Energy	Dollars
Columbus	Columbus Elementary School	Variable Speed Blower and Window	\$ 60,006.00	\$ (3,716.96)	2,820.00		(278.25)	\$ (3,716.96)						
Conrad	Conrad High School	Boiler and Pipes	\$ 165,170.00	\$ 2,669.84			233.00	\$ 2,669.84						
Corvallis	Corvallis High School/Jr High	Lighting, unit controls, HVAC	\$ 94,130.00	\$ (5,923.79)	(59,932.50)	\$ (5,508.88)	(46.45)	\$ (414.91)						
Cottonwood	Cottonwood Elementary	Insulation, Lighting, windows, electric water heater	\$ 41,675.00	\$ 1,084.22	(2,213.00)	\$ (236.38)			548.10	\$ 1,320.60				
Darby	Darby High School	Lighting	\$ 21,325.00	\$ 2,164.18	61,520.00	\$ 2,164.18								
Darby	Darby Middle School	Lighting	\$ 21,325.00	\$ 648.88	15,320.00	\$ 648.88								
Darby	Darby Modular Library School	Lighting	\$ 21,325.00	\$ 25.18	448.50	\$ 25.18								
Denton	Denton Elementary and Middle School	Lighting	\$ 20,544.00	\$ 553.26	5,860.00	\$ 553.26								
DeSmet	DeSmet School	Lighting	\$ 59,746.00	\$ (342.93)	(8,700.00)	\$ (342.93)								
Dillon	Dillon Elementary School	Boiler replacement	\$ 72,304.00	\$ (3,060.33)	3,240.00	\$ 331.35	(369.85)	\$ (3,391.68)						
Dutton	Dutton/Brady Public Schools	Windows and doors	\$ 80,996.00	\$ 36,420.53	46,560.00	\$ 4,451.76					14,500.50	\$ 31,968.77		
East Helena	Administration Building	Lighting	\$ 71,501.00	\$ 173.03	1,740.00	\$ 173.03								
East Helena	East Valley Elementary School	Lighting	\$ 71,501.00	\$ (3,760.48)	(41,640.00)	\$ (3,760.48)								
East Helena	Eastgate School	Lighting	\$ 71,501.00	\$ 6,964.30	70,280.00	\$ 6,964.30								
East Helena	Radley Elementary	Lighting	\$ 71,501.00	\$ 176.94	1,653.00	\$ 176.94								
Eureka	Eureka Schools	Lighting and Windows	\$ 353,516.00	\$ 14,478.54	(65,649.00)	\$ (3,100.75)			22,217.00	\$ 15,219.92	333.17	\$ 751.94	24.00	\$ 1,607.43
Florence	Florence Carlton School	Controls, Commissioning	\$ 441,378.00	\$ -	(9,694.50)		873.00							
Frenchtown	Frenchtown High School	Heat Pump Replacement	\$ 462,206.00	\$ 13,537.86	424,663.00	\$ 29,060.86			(10,990.50)	\$ (15,523.00)				
Frontier Elementary	Frontier Elementary	Lighting	\$ 12,075.00	No Data Provided										
Geyser	Geyser Schools	Lighting and Windows	\$ 17,300.00	\$ 18,552.36	24,593.00	\$ 2,822.37			6,209.00	\$ 9,664.86	283.52	\$ 660.76	66.52	\$ 5,404.37
Glendive	Dawson High School	Windows	\$ 469,833.00	\$ 23,967.32	156,068.63	\$ 10,855.84	1,965.00	\$ 13,111.48						
Grass Range	Grass Range Elementary and High School	Window, Lighting, and Doors	\$ 54,702.00	\$ 6,125.61	49,780.00	\$ 6,125.61								
Great Falls	Great Falls CM Russell High School	Lighting	\$ 354,134.00	\$ 21,444.34	221,000.00	\$ 21,444.34								
Hamilton	Hamilton Middle School	Boiler and Lighting	\$ 60,234.00	No Data Provided										
Harlowton	Hillcrest Elementary School	Windows	\$ 25,202.00	\$ 1,142.79	17,000.00		30.23	\$ 1,142.79						
Havre	Havre Middle and High School	Lighting	\$ 79,972.00	\$ 5,868.53	65,980.00	\$ 5,868.53								
Helena	Broadwater Elementary	Lighting	\$ 313,219.00	\$ 334.40	3,640.00	\$ 334.40								
Helena	Bryant Elementary	Lighting	\$ 313,219.00	\$ 688.34	7,200.00	\$ 688.34								
Helena	Caird Storage Facility	Lighting	\$ 313,219.00	\$ 609.85	505.00	\$ 609.85								
Helena	Capital High	Lighting	\$ 234,311.00	\$ 13,415.93	160,000.00	\$ 13,415.93								
Helena	Central Elementary	Lighting	\$ 313,215.00	\$ 7.68	80.00	\$ 7.68								
Helena	CR Anderson	Lighting	\$ 313,219.00	\$ 7,877.30	85,680.00	\$ 7,877.30								

School District	School	Project Type	Grant Amount	Total Savings (\$)	Electric Savings		Natural Gas Savings		Propane Gas Savings		Diesel Savings		Coal or Wood Savings	
					Energy	Dollar	Energy	Dollars	Energy	Dollars	Energy	Dollars	Energy	Dollars
Helena	Four Georgians Elementary	Lighting	\$ 313,219.00	\$ 1,104.36	11,520.00	\$ 1,104.36								
Helena	Fron Street Learning	Lighting	\$ 313,219.00	\$ 651.92	7,040.00	\$ 651.92								
Helena	Hawthorne Elementary	Lighting	\$ 313,219.00	\$ 692.01	7,355.00	\$ 692.01								
Helena	Helena High and Votech Building	Lighting	\$ 234,311.00	\$ 18,858.67	208,640.00	\$ 18,858.67								
Helena	Helena Middle School	Lighting	\$ 313,219.00	\$ 3,006.89	34,560.00	\$ 3,006.89								
Helena	Jefferson Elementary	Lighting	\$ 313,219.00	\$ 893.30	9,140.00	\$ 893.30								
Helena	Jim Darcy Elementary	Lighting	\$ 313,219.00	\$ 889.84	9,600.00	\$ 889.84								
Helena	Kessler Elementary	Lighting	\$ 313,219.00	\$ 98.75	1,040.00	\$ 98.75								
Helena	Lincoln School	Lighting	\$ 313,219.00	\$ (7.97)	(80.00)	\$ (7.97)								
Helena	Maintenance Shops	Lighting	\$ 313,219.00	\$ 739.86	7,031.00	\$ 739.86								
Helena	Ray Bjork Childhood Center	Lighting	\$ 313,219.00	\$ 1,035.39	10,760.00	\$ 1,035.39								
Helena	Rossiter Elementary	Lighting	\$ 313,219.00	\$ 5,427.24	55,749.00	\$ 5,427.24								
Helena	Seventh Avenue Gym	Lighting	\$ 313,219.00	\$ 210.95	2,319.00	\$ 210.95								
Helena	Smith Elementary	Lighting	\$ 313,219.00	\$ 2,683.86	29,600.00	\$ 2,683.86								
Helena	The May Butler Center	Lighting	\$ 313,219.00	\$ (850.46)	(9,680.00)	\$ (850.46)								
Helena	Warren Elementary	Lighting	\$ 313,219.00	\$ 986.35	10,200.00	\$ 986.35								
Hellgate	Hellgate Intermediate and Primary Schools	Boiler	\$ 144,245.00	\$ 1,766.44			193.95	\$ 1,766.44						
Highwood	Highwood Elementary and High School	Insulate Ceiling, Lighting	\$ 10,527.00	\$ 4,880.41	11,533.00	\$ 969.99			2,464.00	\$ 3,910.42				
Hinsdale	Hinsdale Public Schools Gym	Lighting	\$ 20,000.00	\$ 412.50	3,980.00	\$ 412.50								
Huntley	Huntley Project CTE School	Lighting	\$ 219,376.00	\$ 294.51	4,120.00	\$ 294.51								
Huntley	Huntley Project Elementary School	Lighting	\$ 219,376.00	\$ 190.58	2,400.00	\$ 190.58								
Hysham	Hysham Public School	Windows	\$ 24,849.00	\$ 3,104.11	10,311.55	\$ 855.47			1,567.90	\$ 2,248.64				
Independent	Independent Elementary	Boiler, Lighting	\$ 67,135.00	\$ (5,719.87)	(47,680.00)	\$ (3,833.09)	(274.05)	\$ (1,886.78)						
Jefferson	Jefferson High School	Lighting, Sensors, Doors, Water Heaters	\$ 47,901.00	\$ 7,185.89	74,128.50	\$ 7,589.61	(45.07)	\$ (403.72)						
Joliet	Joliet High School	Windows	\$ 40,627.00	\$ 1,024.24	117,200.00		151.70	\$ 1,024.24						
Jordan	Jordan High School and Gym	Lighting	\$ 13,588.00	\$ 1,642.08	19,755.00	\$ 1,642.08								
Judith Gap	Judith Gap School	Windows	\$ 63,425.00	\$ 835.42	2,000.00	\$ 191.13	70.55	\$ 644.29						
Kalispell	Elrod Elementary	Windows, Doors, Boiler	\$ 285,878.00	\$ 7,344.34	(11,110.00)	\$ (642.63)	875.30	\$ 7,986.97						
Kalispell	Russell Elementary	Windows, Doors, Boiler	\$ 285,878.00	\$ 1,576.94	(6,380.00)	\$ (370.04)	214.95	\$ 1,946.98						
Lavina	Lavina K-12 Schools	Lighting	\$ 49,905.00	\$ (927.32)	(9,760.00)	\$ (927.32)								
Libby	Libby High School	Windows	\$ 161,500.00	\$ 11,148.54							4,637.10	\$ 11,148.54		
Lincoln	Lincoln School	Heaters	\$ 15,274.00	\$ 2,700.18	(13,520.00)	\$ (1,470.93)			2,243.11	\$ 4,171.11				

Appendix A.
Project Data Summary Table

School District	School	Project Type	Grant Amount	Total Savings (\$)	Electric Savings		Natural Gas Savings		Propane Gas Savings		Diesel Savings		Coal or Wood Savings	
					Energy	Dollar	Energy	Dollars	Energy	Dollars	Energy	Dollars	Energy	Dollars
Livingston	Administration Building	Lighting	\$ 45,303.00	\$ (49.99)	(458.50)	\$ (49.99)								
Livingston	Maintenance/Bus Barn	Lighting	\$ 45,303.00	\$ (87.06)	(825.00)	\$ (87.06)								
Livingston	Sleeping Giant School and East Side Elementary	Lighting	\$ 45,303.00	\$ 9,048.62	101,500.00	\$ 9,048.62								
Livingston	Special Services Building	Lighting	\$ 45,303.00	\$ (781.20)	(7,883.00)	\$ (781.20)								
Livingston	Washington School	Lighting	\$ 45,303.00	\$ 622.27	4,880.00	\$ 622.27								
Livingston	Winans Elementary School	Lighting	\$ 45,303.00	\$ 3,162.23	28,280.00	\$ 3,162.23								
Livingston	Winans Elementary School	Lighting	\$ 379,782.00	\$ (14,270.48)	(215,440.00)	\$ (14,270.48)								
Lockwood	Lockwood Elementary	Lighting	\$ 2,000.00	\$ (515.79)	(5,320.00)	\$ (515.79)								
Malta	Malta Junior High	Lighting	\$ 274,049.00	\$ 8,453.15	(9,120.00)	\$ (1,003.67)	848.20	\$ 9,456.82						
Manhattan	Manhattan Elementary	Boiler	\$ 59,781.00	\$ 426.76	5,630.00	\$ 426.76								
Marion	Front School	Thermostats	\$ 59,781.00	\$ (278.25)	(4,320.00)	\$ (278.25)								
Marion	Main School	Windows, Roof Insulation, Thermostats	\$ 59,781.00	\$ 71.69	1,002.00	\$ 71.69								
Marion	Modular School	Windows, Roof Insulation, Thermostats	\$ 59,781.00	\$ 71.69	1,002.00	\$ 71.69								
Medicine Lake	Medicine Lake School	Doors	\$ 10,000.00	\$ (3,620.48)	(10,300.00)	\$ (1,114.53)								
Meistone	Meistone School	Lighting	\$ 21,456.00	\$ 1,843.95	16,980.00	\$ 1,843.95								
Miles City	Garfield	Boiler, Lighting	\$ 492,051.00	\$ 3,059.89	47,325.00	\$ 3,059.89								
Miles City	Highland	Boiler, Lighting	\$ 492,051.00	\$ 2,385.13	15,780.00	\$ 1,052.33	191.45	\$ 1,332.80						
Missoula	Business Building	Lighting	\$ 149,195.00	\$ (1,914.39)	(31,056.00)	\$ (1,914.39)								
Missoula	Cold Springs Elementary	Lighting	\$ 149,195.00	\$ 59.92	972.00	\$ 59.92								
Missoula	Cold Springs Elementary- Modular	Lighting	\$ 149,195.00	\$ 1,498.66	24,312.00	\$ 1,498.66								
Missoula	Franklin Elementary	Lighting	\$ 149,195.00	\$ 478.60	7,764.00	\$ 478.60								
Missoula	Hawthorne Elementary	Lighting	\$ 149,195.00	\$ 1,389.19	22,536.00	\$ 1,389.19								
Missoula	Meadow Hill Middle School	Lighting	\$ 149,195.00	\$ 2,793.17	45,312.00	\$ 2,793.17								
Missoula	MT. Jumbo	Lighting	\$ 149,195.00	No Data Provided										
Missoula	Prescott	Lighting	\$ 149,195.00	No Data Provided										
Missoula	Rattlesnake	Lighting	\$ 149,195.00	\$ 2,967.74	48,144.00	\$ 2,967.74								
Missoula	Russell Elementary	Lighting	\$ 149,195.00	\$ 1,037.08	16,824.00	\$ 1,037.08								
Missoula	Russell Elementary-Annex	Lighting	\$ 149,195.00	\$ (28.11)	(456.00)	\$ (28.11)								
Missoula	Russell Elementary-Annex	Lighting	\$ 149,195.00	\$ 145.21	2,355.60	\$ 145.21								
Missoula	Russell Elementary-Annex	Lighting	\$ 149,195.00	\$ 3,163.03	51,312.00	\$ 3,163.03								
Missoula	Washington Middle School	Lighting	\$ 149,195.00	\$ 4,787.44	77,664.00	\$ 4,787.44								
Missoula	CS Porter	Lighting	\$ 149,195.00	\$ 383.17	6,216.00	\$ 383.17								
Missoula	Lowell Elementary	Lighting	\$ 149,195.00	\$ 1,031.16	16,728.00	\$ 1,031.16								
Missoula	Administration Building	Lighting	\$ 149,195.00	\$ 1,031.16	16,728.00	\$ 1,031.16								

School District	School	Project Type	Grant Amount	Total Savings (\$)	Electric Savings		Natural Gas Savings		Propane Gas Savings		Diesel Savings		Coal or Wood Savings	
					Energy	Dollar	Energy	Dollars	Energy	Dollars	Energy	Dollars	Energy	Dollars
Monforton	Monforton School	Lighting	\$ 132,472.00	\$ 3,162.45	27,560.00	\$ 3,162.45								
Montana City	Montana City School	Lighting	\$ 24,222.00	\$ 3,540.79	41,633.00	\$ 3,540.79								
Moore	Moore public Schools	Lighting	\$ 20,000.00	\$ 2,409.69	24,600.00	\$ 2,409.69								
North Star	North Star Elementary	Lighting	\$ 43,920.00	\$ 15,221.95	47,740.00	\$ 15,221.95								
Noxon	Noxon Schools	Windows	\$ 229,832.00	\$ 4,556.05	66,370.00	\$ 4,556.05								
Olney-Bissell	Olney-Bissell Schools	Heat Pump HVAC System	\$ 167,623.00	\$ 1,777.18	24,400.00	\$ 1,777.18								
Plains	Wildhorse School	Lighting	\$ 2,994.00	\$ 418.90	2,950.00	\$ 418.90								
Plains	Plains High School	Lighting	\$ 53,511.00	\$ 10,200.59	103,770.00	\$ 10,200.59								
Plains	Plains Middle School	Lighting	\$ 53,511.00	\$ (23.61)	(237.50)	\$ (23.61)								
Polson	Cherry Valley Elementary	Lighting	\$ 309,588.00	\$ 2,118.03	37,360.00	\$ 2,118.03								
Polson	Linderman Elementary	Lighting	\$ 309,588.00	\$ 467.33	8,280.00	\$ 467.33								
Polson	Polson High School	Lighting	\$ 149,143.00	\$ 17,706.97	339,900.00	\$ 17,706.97								
Polson	Polson Middle School	Lighting	\$ 309,588.00	\$ 1,630.59	29,520.00	\$ 1,630.59								
Poplar	Poplar Schools	Lighting	\$ 41,480.00	\$ 1,048.34	18,342.00	\$ 1,048.34								
Rapelje	Rapelje Schools	Lighting & Windows	\$ 57,355.00	\$ 2,924.76	38,103.00	\$ 3,802.75							(9.50)	\$ (877.99)
Red Lodge	Mountain View School	Lighting	\$ 62,422.00	\$ 848.11	8,720.00	\$ 848.11								
Reed Point	Reed Point Schools	Lighting	\$ 16,384.00	\$ 4,540.37	26,493.50	\$ 4,540.37								
Richey	Richey High School	Lighting	\$ 6,995.00	\$ 975.62	7,900.00	\$ 975.62								
Roberts	Roberts School	Lighting, Glass Block Replacement, Furnace, Thermostat	\$ 63,909.00	\$ 1,948.26	11,080.00	\$ 1,067.73	98.76	\$ 880.53						
Roundup	Administration Building	Lighting	\$ 8,167.00	\$ 683.23	6,910.00	\$ 683.23								
Roundup	Elementary Gym and Elementary	Lighting	\$ 5,544.00	\$ (696.54)	(7,269.00)	\$ (696.54)								
Roundup	Roundup Junior/Senior High	Lighting	\$ 8,167.00	\$ 2,274.46	26,349.50	\$ 2,274.46								
Savage	Savage Public Schools	Windows, Steam Heat, Roof Insulation	\$ 99,796.00	\$ 927.31	18,620.30	\$ 1,239.19	(20.16)	\$ (155.94)					(20.16)	\$ (155.94)
Sheridan	Sheridan High School	Heating	\$ 36,997.00	\$ 14,100.92	19,160.00		1,004.40	\$ 14,100.92						
St. Ignatious	St. Ignatious	Windows and Doors	\$ 30,152.00	\$ (2,539.74)	3,430.00	\$ 198.09			(3,745.00)	\$ (3,745.00)	401.00	\$ 1,007.17		
Stevensville	Stevensville Elementary and High School	Windows	\$ 41,020.00	\$ 3,374.21	32,320.00		147.30	\$ 3,374.21						
Sun River	Simms High School	Lighting	\$ 65,661.00	\$ 1,370.36	17,660.00	\$ 1,370.36								
Superior	Superior Schools	Lighting	\$ 23,776.00	\$ 2,037.82	21,262.00	\$ 2,037.82								
Swan Valley	Swan Valley Elementary	Lighting and Controls	\$ 39,006.00	\$ 1,868.72	12,770.00	\$ 561.71			800.00	\$ 1,307.01				
Terry	Bolin Elementary School	Boiler Replacement and Piping Insulation	\$ 173,581.00	\$ 228.66	(21,617.50)	\$ (1,441.83)	239.75	\$ 1,670.49						
Thompson Falls	Thompson Falls School District	Lighting	\$ 96,165.00	\$ 1,674.61	17,040.00	\$ 1,674.61								
Townsend	Townsend School District	Controls and Retro Commissioning	\$ 438,993.00	\$ 7,394.59	82,821.00	\$ 7,798.94	(25.92)	\$ (404.35)						

Appendix A.
Project Data Summary Table

School District	School	Project Type	Grant Amount	Total Savings (\$)	Electric Savings		Natural Gas Savings		Propane Gas Savings		Diesel Savings		Coal or Wood Savings	
					Energy	Dollar	Energy	Dollars	Energy	Dollars	Energy	Dollars	Energy	Dollars
Troy	Morrison Elementary	Windows	\$ 156,245.00	\$ 8,670.23	(15,640.00)	\$ (837.07)					112,021.13	\$ 9,507.30		
Troy	Troy High School	Windows	\$ 24,567.00	\$ 19,041.60	36,440.00	\$ 1,874.89					7,255.00	\$ 17,166.71		
Turner	Turner School	Lighting	\$ 12,672.00	\$ 1,262.35	22,520.00	\$ 1,262.35								
Ulm	Ulm Elementary	Windows and Doors	\$ 115,760.00	\$ 144.30	2,520.00	\$ 165.73	(29.25)	\$ (21.43)						
Victor	Victor School	Roof and Wall Insulation	\$ 267,491.00	\$ 781.54									16.99	\$ 781.54
West Yellowstone	West Yellowstone School	Lighting	\$ 50,000.00	\$ 1,045.03	15,120.00	\$ 1,045.03								
White Sulphur Springs	White Sulphur Springs Elementary	Lighting	\$ 7,850.00	\$ 333.36	3,390.00	\$ 333.36								
White Sulphur Springs	White Sulphur Springs High School	Lighting	\$ 14,350.00	\$ 4,523.74	43,800.00	\$ 4,523.74								
Whitehall	Grade School	Lighting	\$ 67,159.00	\$ 1,767.98	16,820.00	\$ 1,767.98								
Whitehall	High School	Lighting	\$ 67,159.00	\$ 1,047.40	10,300.00	\$ 1,047.40								
Whitehall	New School	Lighting	\$ 67,159.00	\$ 5,620.71	63,760.00	\$ 5,620.71								
Wibaux	Wibaux Elementary	Windows	\$ 31,121.00	\$ (104.34)	2,699.00	\$ 194.89	(43.45)	\$ (299.23)						
Winifred	Winifred School	Lighting	\$ 67,806.00	\$ 763.70	7,960.00	\$ 763.70								
Winnett	Winnette School	Lighting	\$ 16,863.00	\$ 1,582.24	12,560.00	\$ 1,582.24								
Wolf Creek	Wolf Creek Elementary	Lighting and Roof Insulation	\$ 7,250.00	\$ 680.87	2,817.00		39.25	\$ 680.87						